

AMENDMENTS TO THE CLAIMS

- 1 1. (Currently Amended) A method of leaching low sulphur content ores to
2 release metal values, comprising:
- 3 preconditioning finely ground elemental sulphur particles with bacteria,
4 ~~comprising *Thiobacillus thiooxidans*~~, in a biological reactor for a sufficient
5 time so that the ~~hydrophobic~~ sulphur becomes wetted and the bacteria attach
6 themselves to the sulphur surfaces, producing acidic bioleach solutions; and
7 agglomerating the ~~preconditioned~~ sulphur particles after they have been
8 preconditioned with bacteria throughout a leaching heap with the low sulphur
9 content ores to release metal values.
- 1 2. (Currently Amended) The method of claim 1 wherein ~~the bacteria further~~
2 ~~include *Thiobacillus ferrooxidans*~~ is added to the leaching heap when the pH
3 of acidic bioleach solution at the bottom of the heap falls below about 2.4.
- 1 3. (Original) The method of claim 1 wherein said finely ground sulphur is
2 produced by rod milling sulphur.
- 1 4. (Currently Amended) The method of claim 3 wherein the sulphur is rod
2 milled such that 1.9 kilograms of sulphur rod milled in 1 liter of water for 15
3 minutes produces a product of approximately 50% of 400 mesh fineness.

1 5. (Currently Amended) The method of claim 1 further including adding a
2 bacteria nutrient to the ~~preconditioning process~~ finely ground sulphur particles
3 during their preconditioning with bacteria.

1 6. (Cancelled)

1 7. (Currently Amended) The method of claim 1 wherein the preconditioning
2 ~~process~~ of the finely ground sulphur particles with bacteria is conducted for 12-
3 48 hours.

1 8. (Cancelled)

1 9. (Currently Amended) The method of claim 1 further including adding acid
2 bioleach solution produced during preconditioning to ~~the~~ a leach solution
3 reservoir associated with the leach heap to partially satisfy the acidic demand
4 of the ore.

1 10. (Currently Amended) The method of claim ~~6~~ 2 including controlling the
2 pH in the heap in the range of 1.8-2.4 so that the *Thiobacillus ferrooxidans* can
3 rapidly oxidize any metal sulphides present in the ore.

1 11. (New) The method of claim 1 wherein the bacteria comprises *Thiobacillus*
2 *thiooxidans*.

1 12. (New) The method of claim 1 in which the sulphur particles are
2 preconditioned with bacteria in a biological reactor for at least 12 hours.

1 13. (New) The method of Claim 1 in which the acid bioleach solutions
2 produced in the reactor are added to the leaching heap.

1 14. (New) A method of leaching low sulphur content ores to release metal
2 values, comprising:
3 preconditioning finely ground elemental sulphur particles with bacteria,
4 comprising *Thiobacillus thiooxidans*, in a biological reactor for at least 12
5 hours so that the hydrophobic sulphur becomes wetted and the bacteria attach
6 themselves to the sulphur surfaces, producing acidic bioleach solutions;
7 agglomerating the preconditioned sulphur particles throughout a leaching heap
8 with the low sulphur content ores to release metal values; and
9 adding the acidic bioleach solution to the leaching heap to partially satisfy the
10 acid demand of the ore.